

REMARKS/ARGUMENTS

Claims 3, 14, 18, and 27 are canceled herein. With entry of this Amendment, claims 1, 4-9, 11, 12, 15, 16, 19-22, 24, 25, and 28-31 will be pending.

The courteous telephone interview granted applicants' undersigned attorney on September 26, 2007 by Examiner Ranodhi Serrao is hereby respectfully acknowledged. As requested by the Examiner, the arguments presented in the Interview are set forth below.

Claims 1, 4, 5, and 7 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication Nos. 2002/0172149 (Kinoshita et al.) and 2003/0117950 (Huang). Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita et al. and Huang, and further in view of U.S. Patent Application Publication No. 2002/0067693 (Kodialam et al.).

Applicants respectfully request reconsideration of the rejections.

The Kinoshita et al. patent is directed to a method and apparatus for protection path setup. As noted by the Examiner, Kinoshita et al. fail to teach wherein bandwidth to be protected of a link pair comprises a lesser of primary bandwidths of links of the link pair traversing a node to be protected.

Huang discloses a link redial for mesh protection. A backup path is established at the time of setup of an original path, and responsive to the single failure, the backup path is used to route traffic around a failed path segment. A backup LSP may be set up between a head end node and a tail end node to protect each working link in a working bundle. For example, as shown in Fig. 1 and described at paragraphs [0034]-[0040], a backup path through nodes 102C, 102D, and 102E may be set up with sufficient bandwidth to cover traffic from node 102Y passing through primary link 104AB connecting nodes 102A and 102B. This backup path may also be used for traffic from node 102X, for example. The bandwidth to be protected by Huang is the bandwidth over a link (e.g., 104AB). The nodes at the ends of the link (e.g., 102A, 102B) are used in the backup path. In contrast to Huang,

applicants' invention is directed to protecting a node and providing backup for a link pair traversing the node. Since Huang does not address protecting bandwidth of a link pair as defined in the claims, there is no discussion of bandwidth to be protected comprising a lesser of primary bandwidths of a link pair traversing a node to be protected. Huang protects a path segment (e.g., link) and uses only a single bandwidth value for the path segment, therefore, there is no pair of links to select between. Moreover, Huang does not disclose selecting a lesser of primary bandwidths of links.

In the *Response to Arguments* section of the Final Office Action dated August 24, 2007, the Examiner refers to additional backup LSPs that may be set. For example, node 102A may set up a backup to link 104AB through nodes 102J and 102K. The Examiner argues that there are "multiple links traversing node 102A such as 104YA-104AB-104BP, 104XA-104AC-104CD-104DE-104EB-104BQ" etc. However, none of these links are a *link pair traversing a node to be protected*, as required by claim 1. As previously discussed, Huang is concerned with protecting a path segment (104AB) and not a node. Applicants' invention, as set forth in claim 1, specifies a method for protecting a node (e.g., "establishing as a backup for said link pair a set of one or more backup paths that do not include said node"). The links described in Huang are used to protect a path (104AB), and thus the backup paths include nodes 102A and 102B.

Accordingly, claim 1 is submitted as patentable over Kinoshita et al. and Huang.

Claims 4-7, depending from claim 1 are also submitted as patentable for at least the same reasons as claim 1.

Claims 16 and 25 are submitted as patentable for the reasons discussed above with respect to claim 1.

Claims 8 and 9 stand rejected under 35 U.S.C 103(a) as being unpatentable over Kinoshita et al. and Ryutaro Kawamura, Ken-ichi Sato, and Ikuo Tokizawa, "Self-Healing ATM Networks Based on Virtual Path Concept", January 1994, IEE, Vol. 12, No. 1, pages 120-127 (Kawamura). Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura and Kinoshita et al. and further in view of Kodialam et al.

Kinoshita et al. do not show or suggest wherein there is at least one set of backup tunnels that protect disparate nodes and that consume more bandwidth on at least one link than provided by at least one link's backup bandwidth pool. In the *Response to Arguments* section of the Final Office Action, the Examiner cites paragraph [0131] of Kinoshita et al. A setup/release control section 64 is used to secure bandwidth to an assigned port and then complete the protection path setup. If the bandwidth needs to be increased, the resource control section secures the bandwidth before setting up the path. If additional bandwidth is not available, the protection path is not established. The protection path is only setup if bandwidth is available. Thus, there are no protection paths that consume more bandwidth than provided by a link's backup bandwidth pool.

Also, as noted by the Examiner, Kinoshita et al. fail to teach wherein establishing backup tunnels comprises signaling backup paths with zero bandwidth to adjacent nodes of each protected node.

Kawamura is directed to self-healing ATM networks rather than MPLS networks (which utilize backup tunnels as set forth in the claims). A virtual backup path is used to send a restoration message. Each node that receives the restoration messages captures the appropriate bandwidth on the link and retransmits the message to the next node on the backup route. The virtual path (VP) is only used for one link or node failure and only as a backup for a virtual path failure. A new restoration route is found for other failures (page 122).

As described at pages 120-121 of Kawamura, the bandwidth of a VP is logically defined in the database of a VP terminator or cross-connect. Thus, a VP route can be established without assigning its bandwidth along the path. The bandwidth is defined in the database of the VP node as needed. The route and bandwidth of the VP are defined independently because the route is defined in the routing table of the node and the bandwidth is logically defined in the database of the node. Applications' invention, as set forth in the claims, requires that there is no signaling of backup bandwidth reservation for the backup tunnels from one node to another node – that is the backup tunnels are signaled with zero

bandwidth. The backup bandwidth used by the backup tunnels for one node may therefore also be used by backup tunnels that protect other nodes. This is different than the virtual path of the ATM networks in Kawamura which assign the bandwidth of a virtual path at a node rather than assigning bandwidth along the path of the VP. Kawamura does not signal a backup tunnel from one node to another. Instead, Kawamura creates a VP at a database of a node and does not assign bandwidth to the VP. The bandwidth is assigned to the VP as needed.

Accordingly, claims 8, 12, 15, 21, and 30, and the claims depending therefrom, are submitted as patentable over the cited references.

For the foregoing reasons, Applicants believe that all of the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite prosecution of the application, please do not hesitate to call the undersigned at (408) 399-5608.

Respectfully submitted,



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